

25X1A

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SUBJECT The Lignite-Mercury Manufacturing Project

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SUPPLEMENT TO 25X1X
REPORT NO.

1. The report deals with the DDR project of producing hard coke from lignite in a plant at Lauchhammer. The information is taken from a copy of a summary report classified "strictly confidential" which refers to research project No. 510232/3026 of the DDR Zentralrat für Forschung und Technik (ZATF).
2. The project seeks to produce a hard coke as a substitute for bituminous coke in metallurgy, according to a process developed by Dr. Pilsenroth and Dr. Gämmler. In order to obtain coke which is firm and low in ash and sulfur content, coal of low tar, sulfur and ash content is made into very fine-grain briquettes. The size of the grain should be no larger than 0.1 mm. Experiments showed that the content of fine material in the granular size of 0-0.5 mm must amount to at least 50 percent of the total granulation. It is important that the moisture content in the various granular fractions be largely the same; otherwise, shrinkage strains will appear during the coking process which will loosen up the texture considerably. This coal is made into briquettes in extruding presses without addition of a binding agent; the briquettes have a solidity of 200-210 kg/cm². Before the briquettes are placed into the vertical chamber furnaces, however, they are subjected to a drying process under 200°-300° C., in order to prevent a loosening up of the briquette texture by sudden water condensation in the coking furnaces. Thereafter, the briquettes are coked in the usual way at a temperature of 1100°-1200° C. The coke is allowed to refine for a period of 16 hours before it is drawn off.

3. (a) Analysis data of the processed coal:

Moisture content	56-58%
Sulfur "	0.5-0.7%
Tar " (Piscner Analysis)	3-5%
Combustion heat	2000 kcal/kg
Ash content	5-7%

(b) Analysis data of the briquettes:

Moisture content	10-12%
Density	1.32 g/cm ³
Compressive strength	230 kg/cm ²

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- (c) Properties of the coke obtained from lignite at the trial plant in Delitzsch:

Moisture content	5-10%
Ash content (ref. to anhydrous coke)	12-13%
Sulfur " (" " ")	1.1-1.4%
Volatile content (" " ")	3-5%
Lower heating value	6200-6500 kcal/kg
Igniting point acc. to Bunte and Köhmel	450 degrees
Compressive strength (varied depending on the briquette material)	120-180 kg/cm ²
Abrasion strength (" " ")	40-65%
Drop strength (" " ")	65-80%
Porosity	greater than 40 mm 20-25%

- (d) Composition of the water and ash free coke:

Carbon	98.75%
Hydrogen	0.75%
Oxygen + nitrogen + organic sulfur	0.70%

- (e) The following grades and percentages were obtained:

Larger than 30 mm	65-80%
30-10 mm	20-10%
Smaller than 10 mm	19-15%

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